

**Mid-Term Exam**

Total Marks: 30

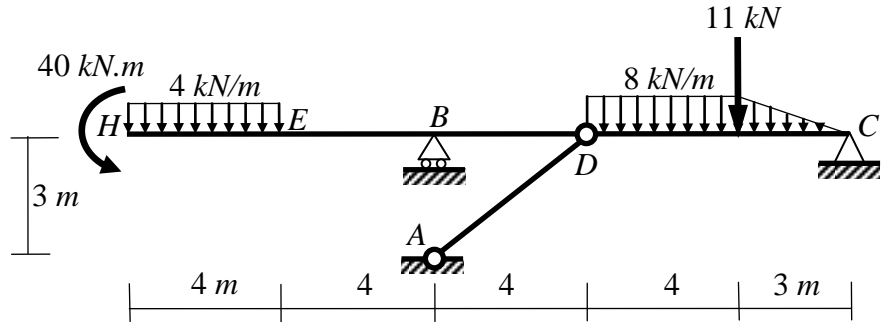
No. of Questions:3 (Attempt all questions)

**Name:**

**Code:**

**Question (1): (12 Marks)**

For the shown structure, determine the reactions at the supports *A*, *B* and *C* and the force in the link member *AD*.



**Solution:**

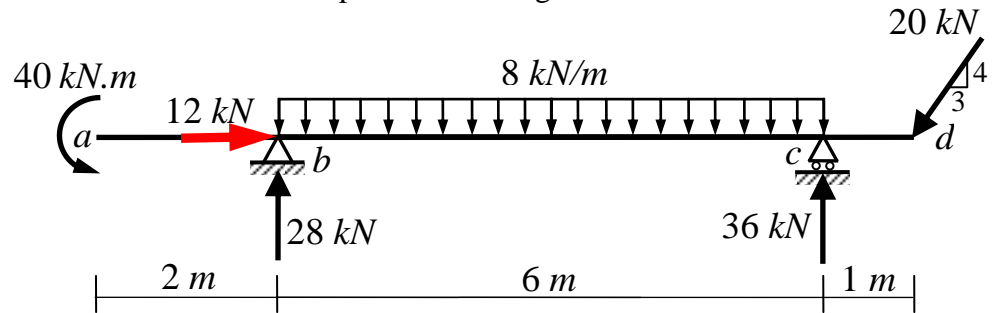
**Question (2): (12 Marks)**

For the shown beam:

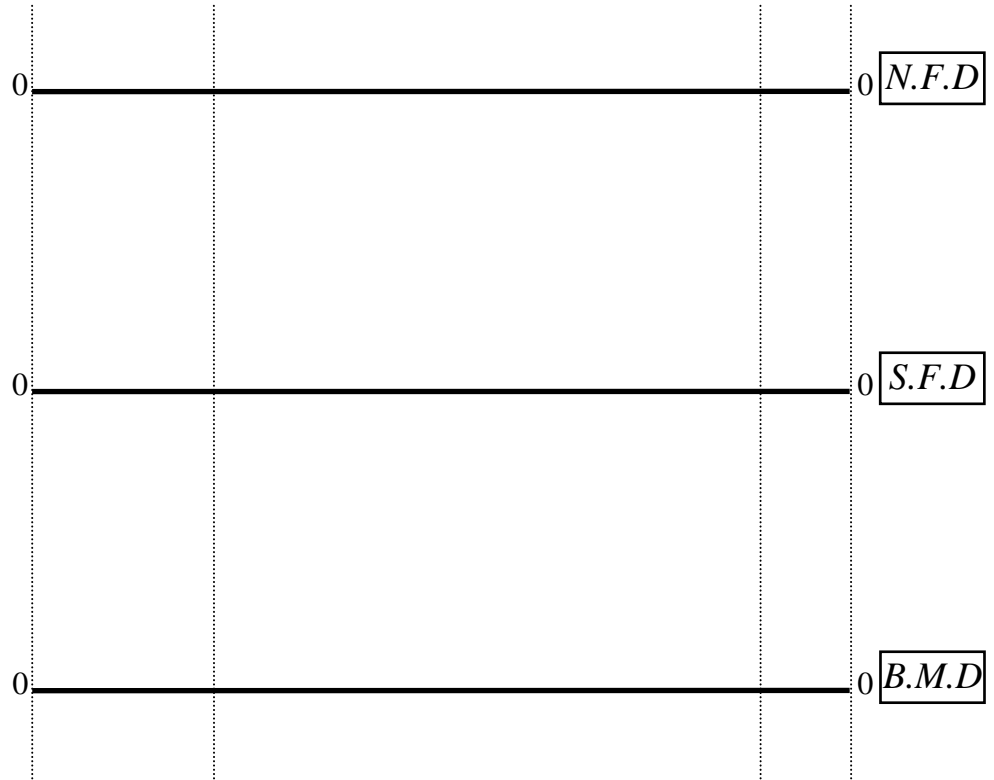
- (a) Draw the normal force, shear force and bending moment diagrams.
- (b) Determine the location and the value of the maximum positive bending moment.

**Note:**

The reactions are given.

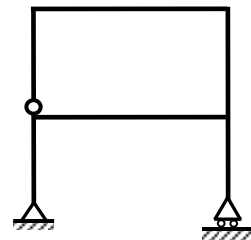
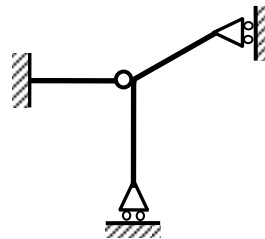
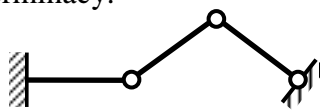


**Solution:**



**Question (3): (6 Marks)**

For any loading case, determine whether each of the shown structures is stable or unstable. If stable, determine whether it is statically determinate or indeterminate. If statically indeterminate, determine the degree of indeterminacy.



**Solution:**

(a)

(b)

(c)

With my best wishes

Dr. M. Abdel-Kader